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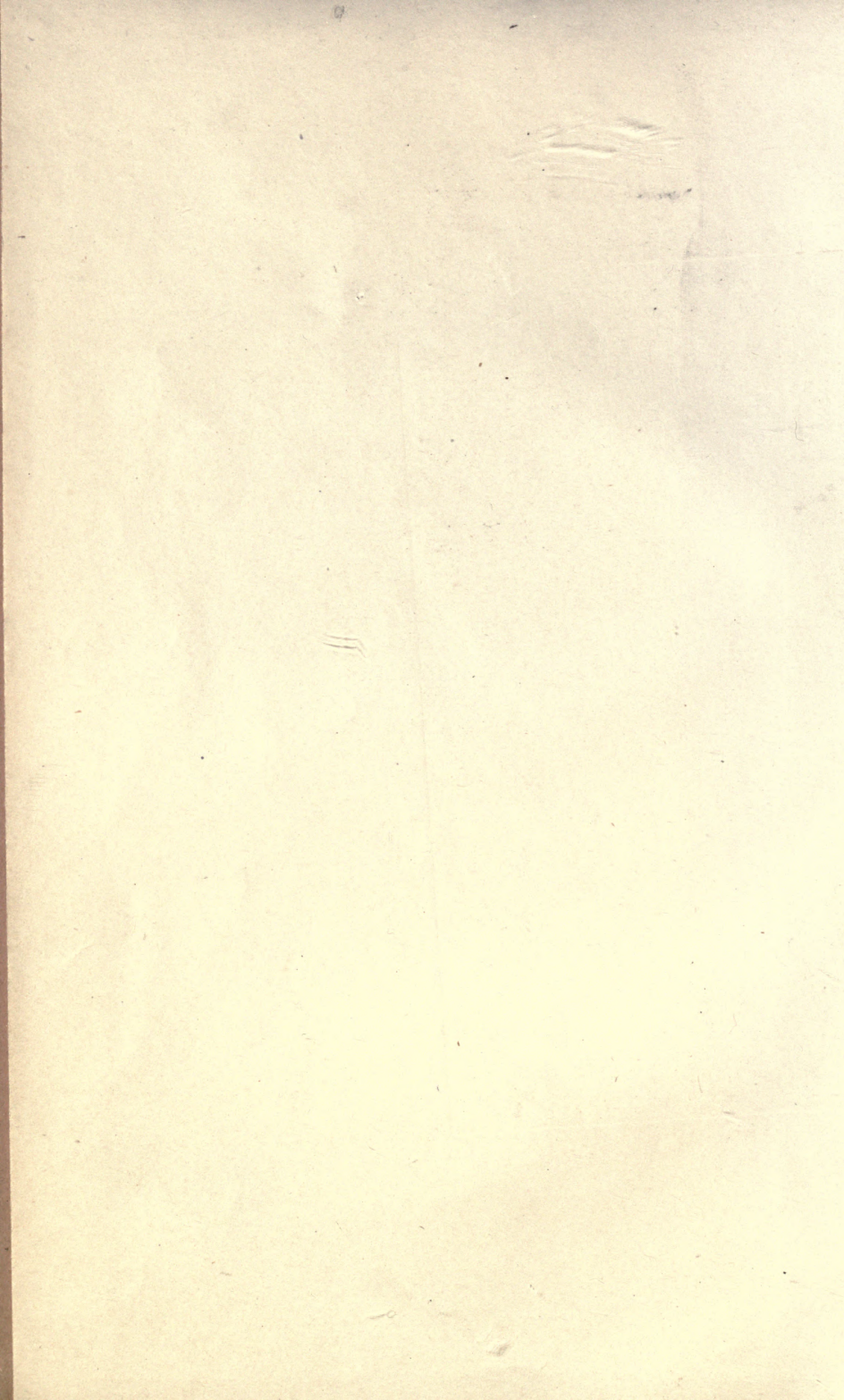
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CATALOGUE
OF
MINERALS,

WITH THEIR
FORMULÆ AND CRYSTALLINE SYSTEMS,

PREPARED FOR THE USE OF THE STUDENTS OF THE
SCHOOL OF MINES,
OF
COLUMBIA COLLEGE.

BY
THOMAS EGLESTON,
Professor of Mineralogy and Metallurgy.

SECOND EDITION.



NEW YORK.

1871.

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INTRODUCTION

The following Catalogue of Minerals is intended to serve as a guide to the arrangement of the collection of Minerals of the School of Mines of Columbia College and also as a catalogue to private collections. To render it something more than a mere enumeration of names, the formulæ expressing the chemical composition of the mineral, and the system in which it crystallizes have been given. The classification of the Silicates is that adopted by Dana in the fifth edition of his Mineralogy. The other Minerals have been classified by their bases.

An alphabetical catalogue of the Minerals which crystallize in the different systems will be found on pp. vii—xii.

It has been found most convenient to refer to the systems of crystallization by numbers. A table explaining their meaning, and the names which have been used by different authors will be found on p. vi of the Catalogue.

In order to facilitate reference to collections, a blank column, headed No., has been left before the name of the species.

An asterisk following the name of a mineral, as Sulphur*, p. 1, denotes that it has been found in the United States. A dagger, as Danburite†, p. 5, denotes that it has been found in the United States only. The other minerals, so far as is known, have not been found in this country. The doubtful species have generally been indicated by an interrogation point.

NEW YORK, JAN., 1871.

THOMAS EGGLESTON.

SYSTEMS OF CRYSTALLIZATION.

No.	SIMPLE FORMS.	AXES.
1	Octahedron, or cube.	3 axes rectangular and equal.
2	Tetragonal pyramid, or right prism with a square base.	3 axes rectangular, 2 equal.
3	Rhombic pyramid, or right prism with a rhombic base.	3 axes rectangular and unequal.
4	Monoclinic pyramid, or inclined rhombic prism.	3 axes unequal, 2 rectangular.
5	Triclinic pyramid, or doubly inclined rhomboidal prism.	3 axes unequal and unequally inclined.
6	Hexagonal pyramid, hexagonal prism, or rhombohedron.	4 axes, 3 equal and equally inclined, 1 at right angles to the other 3.

NAMES USED BY DIFFERENT AUTHORS.

No.	MOHS.	WEISS AND ROSE.	NAUMANN.
1	Tessular.	Regular.	Tesseral.
2	Pyramidal.	2 and 1 axial.	Tetragonal.
3	Orthotype.	1 and 1 axial.	Rhombic.
4	Hemiorthotype.	2 and 1 membered.	Monoclinohedric.*
5	Anorthotype.	1 and 1 membered.	Triclinohedric.*
6	Rhombohedral.	3 and 1 axial.	Hexagonal.

NAMES USED BY DIFFERENT AUTHORS.

No.	PHILLIPS.	DELAFOSSÉ.	DANA, 1854.	DANA, 1869.
1	Cubic.	Cubic.	Monometric.	Isometric.
2	Pyramidal.	Tetragonal.	Dimetric.	Tetragonal.
3	Prismatic.	Orthorhombic.	Trimetric.	Orthorhombic.
4	Oblique.	Clinorhombic.	Monoclinic.	Monoclinic.
5	Anorthic.	Clinohedric.	Triclinic.	Triclinic.
6	Rhombohedral.	Hexagonal.	Hexagonal.	Hexagonal.

* Now monoclinic and triclinic.



MINERALS

ARRANGED ACCORDING TO THEIR

SYSTEMS OF CRYSTALLIZATION

1. ISOMETRIC.

Alabandite.
Altaite.
Amalgam.
Analcite.
Argentite.
Arquerite.
Arsenolite.
Binnite.
Boracite.
Bornite.
Bromyrite.
Brongniardite.
Bunsenite.
Carrollite.
Cerargyrite.
Cerate.?
Chromite.
Clausthalite.
Clayite.
Cobaltite.
Copper.
Corynite.
Cubanite.
Cuprite.
Danalite.
Diamond.
Embolite.
Eulytite.
Faujasite.
Fluorite.

Franklinite.
Gahnite.
Galenite.
Garnet.
Gersdorffite.
Gold.
Grünauite.
Halite.
Hauerite.
Häuytite.
Helvite.
Hercynite.
Iron.
Kalinite.
Kremersite.
Lapis Lazuli.
Laurite.
Lead.
Leucite.
Linnæite.
Magnesioferrite.
Magnetite.
Melaconite.
Mercury.
Microlite.
Native iron.
Naumannite.
Nosite.
Palladium.

Pentlandite.
Percylite.
Periclase.
Perovskite.
Pettkoite.
Pharmacosiderite.
Platiniridium.
Platinum.
Pollucite.
Pyrite.
Pyrochlore.
Pyrrhite.
Rhodizite.
Sal ammoniac.
Senarmontite.
Silver.
Skutterudite.
Smaltite.
Sodalite.
Sphalerite.
Spinel.
Sylvite.
Tennantite.
Tetrahedrite.
Thorite.
Tritomite.
Tschermitte.
Ullmannite.
Uraninite.
Voltaite.

2. TETRAGONAL.

Adelpholite.
Apophyllite
Azorite.
Braunite.
Calomel.
Cassiterite.
Chalcopyrite.
Chiolite.
Dipyre.
Edingtonite.
Ekebergite.
Fergusonite.
Gehlenite.
Guarinite.

Hausmannite.
Lœweite.
Matlockite.
Marialite.
Meionite.
Mellite.
Mellite.
Mizzonite.
Monimolite.
Nagyagite.
Octahedrite.
Paranthite.
Phosgenite.
Romeite.

Rutile.
Sarcolite.
Scheelite.
Stannite. ?
Stolzite.
Tapiolite.
Tin.
Torbernite.
Wernerite.
Wulfenite.
Vesuvianite.
Xenotime.
Zircon.

3. ORTHORHOMBIC.

Acanthite.
Adamite.
Æschynite.
Aikinite.
Alloclasite.
Andalusite.
Anglesite.
Anhydrite.
Anthophyllite.
Aphthitalite.
Aragonite.
Arsenopyrite.
Astrophyllite.
Atacamite.
Autunite.
Barite.
Bismuthinite.
Bolivianite.
Bournonite.
Brochantite.
Bromlite.
Brookite.
Calamine.
Caledonite.
Carminite.
Carpholite.
Celestite.
Cerussite.
Cervantite.
Chalcocite.
Chalcostibite.
Childrenite.

Chondrodite.
Chrysoberyl.
Chrysolite.
Claudetite.
Columbite.
Cotunnite.
Cryophyllite.
Daleminzite.
Descloizite.
Diaspore.
Dimorphite.
Dufrenite.
Dufrenoyite.
Dyscrasite.
Emplectite.
Enargite.
Enstatite.
Epistilbite.
Epsomite.
Euchroite.
Eudnophite.
Euxenite.
Fauserite.
Fayalite.
Felsobanyite.
Fischerite.
Fluellite.
Forsterite.
Gadolinite.
Geocronite.
Gismondite.

Glaucodot.
Goslarite.
Goethite.
Haidingerite.
Herderite.
Herschelite.
Hessite.
Hopeite.
Huebnerite.
Hypersthene.
Ilvaite.
Iolite.
Jamesonite.
Jefferisite. ?
Kaolinite.
Kieserite.
Langite.
Lanthanite.
Leadhillite.
Lecontite.
Lepidolite.
Leucophanite.
Leucopyrite.
Libethenite.
Lindackerite.
Loellingite.
Manganite.
Manganocalcite. ?
Marcasite.
Margarite.

Margarodite.
 Mascagnite.
 Massicot.
 Megabasite.
 Mendipite.
 Mengite.
 Molybdate.
 Monticellite.
 Mosandrite?
 Muscovite.
 Naphthalin.
 Natrolite.
 Nitre.
 Okenite?
 Olivenite.
 Orpiment.
 Pacite.
 Parathorite.
 Peganite.
 Phillipsite.
 Phlogopite.
 Phoenicochroite?
 Pholerite.
 Picrosmine.

Polybasite.
 Polyhalite?
 Polycrase.
 Polymignite.
 Prehnite.
 Pseudomalachite.
 Pyrolusite.
 Pyrophyllite.
 Rammelsbergite.
 Samarskite.
 Sapphirine?
 Sartorite.
 Scorodite.
 Serpentine?
 Seybertite.
 Sloanite.
 Staurolite.
 Stephanite.
 Sternbergite.
 Stibnite.
 Stilbite.
 Stromeyerite.
 Strontianite.
 Stylotypite.

Struvite.
 Succinellite.
 Sulphur.
 Talc.
 Tantalite.
 Tauriscite.
 Tephroite.
 Thenardite.
 Thermonatrite.
 Thomsonite.
 Topaz.
 Triphylite.
 Triplite.
 Tyrolite.
 Valentinite.
 Villarsite.
 Wavellite.
 Witherite.
 Wittichenite.
 Wolframite.
 Yttrotantalite.
 Zinkenite.
 Zoisite.

4. MONOCLINIC.

Acmite.
 Ægirite.
 Allanite.
 Alunogen.
 Amphibole.
 Annabergite.
 Arfvedsonite?
 Atelestite.
 Azurite.
 Barytocalcite.
 Bieberite.
 Bobierite.
 Borax.
 Bosjemanite?
 Botryogen.
 Brewsterite.
 Brushite.
 Cabrerite.
 Churchite?
 Clinoclasite.
 Conarite?
 Corundophilite.
 Crednerite.
 Crocoite.
 Cyanochroite.
 Datolite.
 Durangite.

Epidote.
 Erythrite.
 Euclase.
 Fibrolite.
 Fichtelite.
 Freieslebenite.
 Gay-Lussite.
 Glauberite.
 Gypsum.
 Harmotome.
 Hartite.
 Hessenbergite.
 Heulandite.
 Hoernesite.
 Hureaulite.
 Hyalophane.
 Hydromagnesite.
 Johannite.
 Keilhauite.
 Kermesite.
 Koettigite.
 Kupferite.
 Lanarkite.
 Laumontite.
 Lazulite.
 Linarite.
 Liroconite.

Malachite.
 Melanterite.
 Meneghinite.
 Metabrushite.
 Mirabilite.
 Miargyrite.
 Monazite.
 Natron.
 Orthoclase.
 Pachnolite.
 Partschinite.
 Pectolite.
 Petalite.
 Pharmacolite.
 Pickeringite?
 Picromerite.
 Piedmontite.
 Plagionite.
 Prosopite.
 Pyrosclerite?
 Pyrostilpnite.
 Pyroxene.
 Realgar.
 Ripidolite.
 Rittingerite.
 Roemerite.
 Rutherfordite.

Scheererite.
Scolecite.
Spodumene.
Sylvanite.
Symplectite.
Tagilite.

Thomsenolite.
Titanite.
Trona.
Vauquelinite.
Vivianite.

Wagnerite.
Warwickite. ?
Whewellite.
Woehlerite.
Wollastonite.

5. TRICLINIC.

Albite.
Amblygonite.
Andesite.
Anorthite.
Axinite.

Babingtonite.
Chalcanthaite.
Chloritoid. ?
Cryolite.
Cyanite.
Danburite.

Labradorite.
Mesolite. ?
Oligoclase.
Rhodonite.
Sassolite.

6. HEXAGONAL.

Allemontite.
Allopalladium.
Alumian. ?
Alunite.
Ankerite.
Antimony.
Apatite.
Arsenic.
Beryl.
Beudantite.
Biotite.
Bismuth.
Breithauptite.
Brucite.
Calcite.
Cancrinite.
Catapleiite.
Chabazite.
Chalcophyllite.
Cinnabar.
Connellite.
Copiapite. ?
Coquimbite.
Corundum.
Covellite.
Cronstedtite.
Diopase.
Dolomite.
Dreelite.

Eudialyte.
Fluocerite.
Gibbsite.
Gmelinite.
Graphite.
Greenockite.
Hematite.
Hydrotalcite.
Iodyrite.
Iridosmine.
Jarosite.
Joseite.
Lepidomelane. ?
Leuchtenbergite.
Levynite.
Magnesite.
Meliphanite. ?
Menaccanite.
Mesitite.
Millerite.
Mimetite.
Molybdenite. ?
Nephelite.
Niccolite.
Parisite.
Penninite.
Phenacite.
Pistomesite.
Plattnerite. ?

Prochlorite. ?
Proustite.
Pyroaurite.
Pyrargyrite.
Pyromorphite.
Pyrosmalite.
Pyrrhotite.
Quartz.
Raimondite.
Rhodochrosite.
Schwartzembergite.
Siderite.
Smithsonite.
Soda nitre.
Susannite.
Svanbergite.
Tellurium.
Tetradymite.
Tourmaline.
Vanadinite.
Volborthite.
Water.
Wehrlite.
Willemite.
Wurtzite.
Xanthoconite.
Zinc.
Zincite.

Minerals which do not Crystallize or whose System is undetermined.

Algodonite.	Chloropal.	Guyaquillite.
Allophane.	Chlorophæite.	Gummite.
Alpite.	Chodneffite.	Gyrolite.
Aluminite.	Chondrasenite.	Halloysite.
Ambrite.	Chonicrite.	Halotrichite.
Ammiolite.	Chrismatite.	Hatchettite.
Anthosiderite.	Chrysocolla.	Hielmite.
Anthracozenite.	Cimolite.	Hircite.
Apatelite.	Cirrolite.	Hisingerite.
Aphrodite.	Coccinite.	Hovite.
Apjohnite.	Collyrite.	Howlite.
Arksutite.	Conichalcite.	Humboldtine.
Arseniosiderite.	Cookeite.	Hydroboracite.
Asphaltum.	Copalite.	Hydrodolomite.
Augelite.	Cornwallite.	Hydrophite.
Aurichalcite.	Crocidolite.	Hydrozincite.
Barrandite.	Crookesite.	Hypochlorite.
Barnhardtite.	Cryptolite.	Hypostilbite.
Bathvillite.	Cryptolinite.	Idrialite.
Bayldonite.	Cryptomorphite.	Isopyre.
Beauxite.	Cuproscheelite.	Jadeite.
Bechilite.	Cyanotrichite.	Jollyte.
Berlinite.	Damourite.	Kaneite.
Berthierite.	Dechenite.	Karelinitite.
Berzelianite.	Deweylite.	Kischtimite.
Berzeliite.	Diadochite.	Knebelite.
Biharite.	Domeykite.	Kobellite.
Bindheimite.	Dopplerite.	Könlite.
Bismite.	Dysodile.	Lagonite.
Bismutite.	Ekmannite.	Lamprophanite.
Bløedite.	Elaterite.	Larderellite.
Borickite.	Eliasite.	Lehrbachite.
Boulangerite.	Erdmannite.	Leucopetrite.
Brewsterlinite.	Erinite.	Liebigite.
Bruecknerellite.	Eucairite.	Limnite.
Butyrellite.	Euosmite.	Limonite.
Cacoxenite.	Euphyllite.	Löwigite.
Calaverite.	Evansite.	Medjidite.
Callainite.	Fahlunite.	Melanellite.
Carnallite.	Ferberite.	Mendozite.
Carphosiderite.	Fibroferrite.	Middletonite.
Castillite.	Gearksutite.	Mineral coal.
Cataspilite.	Genthite.	Minium.
Celadonite.	Geocerite.	Misenite.
Cerolite.	Geocerellite.	Molysite.
Chamoisite.	Geomyricite.	Montanite.
Chenevixite.	Gillingite.	Montmorillonite.
Chilenite.	Glaucosite.	Mordenite.
Chiviatite.	Glockerite.	Morenosite.
Chlorastrolite.	Gold amalgam.	Muromontite.

Naphtha.	Schorlomite.	Troilite.
Neolite.	Schreibersite.	Trolleite.
Neotocite.	Schrötterite.	Tscheffkinit.
Nitrocalcite.	Scleretinite.	Tungstite.
Nitromagnesite.	Selensulphur.	Turgite.
Opal.	Sepiolite.	Turquois.
Oellacherite.	Smectite.	Ulexite.
Ozocerite.	Sordavalite.	Uraconite.
Palagonite.	Spadaite.	Uranochalcite.
Paragonite.	Sphærite.	Urpethite.
Paraluminite.	Stankite.	Vanadic ochre.
Pencatite.	Stercorite.	Voglianite.
Pihlite.	Stibiconite.	Voglite.
Pimelite.	Stilpnomelane.	Voigtite.
Pinite.	Succinite.	Volgerite.
Pisanite.	Sulphatite.	Voltzite.
Pissophanite.	Sussexite.	Wad.
Pitticite.	Syepoorite.	Walchowite.
Pittolium.	Szaibelyite.	Whitneyite.
Plumbogummite.	Tachydrite.	Wichtisite.
Predazzite.	Tachylyte.	Wolchonskoite.
Psilomelane.	Tallingite.	Xanthosiderite.
Pyrochroite.	Tasmanite.	Xonaltite.
Pyroretinite.	Tavistockite.	Xyloretinite.
Remingtonite.	Taylorite.	Yttrocerite.
Retinellite.	Tengerite.	Zaratite.
Rochlederite.	Teschemacherite.	Zietrisikite.
Rösslerite.	Thrombolite.	Zinkosite.
Samoite.	Thuringite.	Zippeite.
Saponite.	Tiemannite.	Zorgite.
Schlanite.	Trichalcite.	

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CATALOGUE OF MINERALS.

No.	Name.	Formula.	System of crystallization.
-----	-------	----------	-------------------------------

HYDROGEN.

Water*	H	6
---------------	---	---

SULPHUR.

Sulphur*	S	3
-----------------	---	---

Selensulphur*	S, Se	
----------------------	-------	--

Sulphatite*	H S	
--------------------	-----	--

TELLURIUM.

Tellurium	Te	6
------------------	----	---

CARBON.

Diamond*	C	1
-----------------	---	---

Graphite*	C	6
------------------	---	---

BORON.

Sassolite	H ³ B	5
------------------	------------------	---

SILICON.

Quartz*	Si	6
----------------	----	---

Chalcedony*

Agate*

Jasper*

No.	Name.	Formula.	System of crystallization.
-----	-------	----------	----------------------------

Opal

Si

Precious opal

Semi-opal*

Fiorite

Tripolite

SILICATES.

A. ANHYDROUS SILICATES.

I. BISILICATES.

I. AMPHIBOLE GROUP.

1.—Pyroxene Section.

Enstatite*	Mg Si	3
Hypersthene	(Mg, Fe) Si	3
Diaclasite	(Mg, Ca Fe) Si	3
Wollastonite*	Ca Si	4
Pyroxene*	R Si	4
Malacolite*	(Ca Mg) Si	
Sahlite*	(Ca Mg Fe) Si	
Hedenbergite*	(Ca Fe) Si	
Augite*	(Ca Mg Fe) (Si Al $\frac{2}{3}$)	
Ægirite	($\frac{1}{2}$ Ca Na Fe) ³ + $\frac{1}{2}$ Fe ³ Si ³	4
Acmite	($\frac{1}{2}$ Na Fe) ³ + $\frac{3}{8}$ Fe ³ Si ³	4
Rhodonite*	Mn Si	5
Babingtonite*	($\frac{3}{4}$ Ca Fe Mn) ³ + $\frac{1}{4}$ Fe ³ Si ³	5

2.—Spodumene Section.

Spodumene*	$\frac{1}{2}$ (Li Na) ³ + $\frac{1}{2}$ Al Si ³	4
Petalite*	($\frac{1}{6}$ Li Na) ³ + $\frac{1}{6}$ Al Si ³ + 3 Si	4

No.	Name.	Formula.	System of crystaliza- tion.
-----	-------	----------	-----------------------------------

3.—*Amphibole Section.*

Kupfferite	Mg Si	4
Anthophyllite	$(\frac{1}{2} \text{Fe} + \frac{1}{2} \text{Mg}) \text{Si}$	3
Amphibole*	R Si	4
Tremolite*	$(\text{Ca Mg}) \text{Si}$	
Actinolite*	$(\text{Ca Mg Fe}) \text{Si}$	
Hornblende*	$(\text{Mg Ca Fe}) (\text{Si Al})$	
Arfvedsonite	$(\frac{2}{3} (\frac{1}{2} \text{Fe} + \frac{1}{2} \text{Na})^3 + \frac{2}{3} \text{Fe}) \text{Si}^3$	4 ?
Crocidolite	$(\text{Na Mg Fe})^2 \text{Si}^5 + 2 \text{H}$	

Appendix to Amphibole Section.

Wichtisit	$(\frac{1}{2} (\text{Na Mg Ca Fe})^3 + \frac{1}{2} (\text{Al Fe})) \text{Si}^3$	
Sordavalite	$(\frac{1}{2} (\text{Mg Fe})^2 + \frac{1}{2} \text{Al}) \text{Si}^3$	
Tachylite	$\text{K, Na, Ca, Mg, Fe, Al, Si}$	

II. BERYL GROUP.

Beryl*	$(\frac{1}{3} \text{Be}^3 + \frac{1}{3} \text{Al}) \text{Si}^2$	6
Eudialyte	$2 (\text{Ca Na})^2 \text{Si}^2 + 2 \text{r Si}^2$	6

III. POLLUCITE GROUP.

Pollucite	$(\text{Cs}^3 \text{Al}) \text{Si}^3 + \frac{1}{3} \text{H}$	1
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II. UNISILICATES.

I. CHRYSOLITE GROUP.

Forsterite*	$\text{Mg}^2 \text{Si}$	3
Monticellite	$(\frac{1}{2} \text{Ca} + \frac{1}{2} \text{Mg})^2 \text{Si}$	3
Chrysolite*	$(\text{Mg Fe})^2 \text{Si}$	3
Fayalite	$\text{Fe}^2 \text{Si}$	3
Tephroite*	$\text{Mn}^2 \text{Si}$	3
Knebelite	$(\frac{1}{2} \text{Fe} + \frac{1}{2} \text{Mn})^2 \text{Si}$	

No.	Name.	Formula.	System of crystallization.
	Leucophanite	$[\frac{1}{2}(\text{Ca Na}) + \frac{1}{2} \text{Be}]^2 \text{Si} + \frac{2}{3} \text{Si}$	3
	Woehlerite	$[\frac{2}{3}(\text{Na Ca})^2 + \frac{1}{3} \text{Zr}] \text{Si} [+ \frac{1}{10} (\text{Fe Mn}) \text{Cb}]$	4
	II. PHENACITE GROUP.		
	Willemite*	$\text{Zn}^2 \text{Si}$	6
	Phenacite	$\text{Be}^2 \text{Si}$	6
	Meliphanite	$((\text{Ca Na Be})^2 \text{Al})^2 \text{Si}^3 + \frac{1}{2} \text{Si}$	6 ?
	III. HELVITE GROUP.		
	Helvite	$(\frac{1}{2}(\text{Mn Fe}) + \frac{1}{2} \text{Be})^2 \text{Si} + \frac{1}{3} \text{MnS}$	1
	Danalite†	$(\frac{1}{2}(\text{Fe Mn Zn}) + \frac{1}{2} \text{Be})^2 \text{Si} + \frac{1}{3} \text{ZnS}$	1
	IV. GARNET GROUP.		
	Garnet*	$(\frac{1}{2} \text{R}^3 + \frac{1}{2} \text{H})^2 \text{Si}^3$	1
	Pyrope*	$(\frac{1}{2}(\text{Ca Mg Fe Mn})^3 + \frac{1}{2} \text{Al})^2 \text{Si}^3$	
	Grossularite*	$(\frac{1}{2} \text{Ca}^3 + \frac{1}{2} \text{Al})^2 \text{Si}^3$	
	Almandite*	$(\frac{1}{2} \text{Fe}^3 + \frac{1}{2} \text{Al})^2 \text{Si}^3$	
	Spessartite*	$(\frac{1}{2}(\text{Mn Fe})^3 + \frac{1}{2} \text{Al})^2 \text{Si}^3$	
	Andradite*	$(\frac{1}{2} \text{Ca}^3 + \frac{1}{2}(\text{Fe Al}))^2 \text{Si}^3$	
	Ouvarovite	$(\frac{1}{2} \text{Ca}^3 + \frac{1}{2} \text{Cr})^2 \text{Si}^3$	
	V. VESUVIANITE GROUP.		
	Zircon*	Zr Si	2
	Vesuvianite*	$(\frac{2}{3}(\text{Ca Mg Fe})^2 + \frac{2}{3} \text{Al})^2 \text{Si}^3$	2
	Melillite	$(\frac{2}{3}(\text{Na Mg Ca})^3 + \frac{1}{3}(\text{Al Fe}))^2 \text{Si}^3$	2
	VI. EPIDOTE GROUP.		
	Epidote*	$(\frac{1}{3} \text{Ca}^3 + \frac{2}{3}(\text{Al Fe}))^2 \text{Si}^3$	4
	Piedmontite	$(\frac{1}{3} \text{Ca}^3 + \frac{2}{3}(\text{Al Fe Mn}))^2 \text{Si}^3$	4
	Allanite*	$(\frac{1}{2}(\text{Ce Fe La Di Y Ca})^3 + \frac{1}{2}(\text{Al Fe}))^2 \text{Si}^3$	4
	Muromontite	$\text{Ce, La, Y, Be, Fe, Al, Si}$	

No.	Name.	Formula.	System of crystallization.
	Zoisite*	$(\frac{1}{3} \text{Ca}^3 + \frac{2}{3} \text{Al})^2 \text{Si}^3$	3
	Jadelite	$(\frac{1}{3}(\frac{2}{3} \text{Na} + \frac{1}{3} \text{R})^3 + \frac{2}{3} \text{Al})^2 \text{Si}^2 + 3 \text{Si}$	
	Partschinite	$(\frac{1}{2}(\text{Mn Fe})^3 + \frac{1}{2} \text{Al})^2 \text{Si}^3$	4
	Gadolinite	$(\text{Be Y Ce Fe})^2 \text{Si}$	3
	Mosandrite	$(\frac{1}{3} \text{Ca}^3 + \frac{2}{3}(\text{Ti Ce La B}))^2 \text{Si}^3 + 1\frac{1}{2} \text{H}$	3 ?
	Ilvaite*	$(\frac{2}{3}(\text{Ca Fe})^3 + \frac{2}{3}(\text{Fe Al}))^2 \text{Si}^3$	3
VII. AXINITE GROUP.			
	Axinite*	$(\text{Ca}^3 \text{R B})^2 \text{Si}^3$	5
	Danburite†	$(\frac{1}{4} \text{Ca}^3 + \frac{3}{4} \text{B})^2 \text{Si}^3$	5
VIII. IOLITE GROUP.			
	Iolite*	$2(\text{Fe Mg}) \text{Si} + \text{Al}^2 \text{Si}^3$	3
IX. MICA GROUP.			
	Phlogopite*	$(\frac{7}{11}(\text{K Mg})^3 + \frac{4}{11} \text{Al})^2 \text{Si}^3$	3
	Biotite*	$(\frac{1}{2}(\text{K Mg Fe})^3 + \frac{1}{2}(\text{Al Fe}))^2 \text{Si}^3$	6
	Lepidomelane*	$(\frac{1}{4}(\text{K Mg Fe})^3 + \frac{3}{4}(\text{Al Fe}))^2 \text{Si}^3$	6 ?
	Astrophyllite	$[(\text{Ti Zr}) \frac{2}{3}(\text{K Fe Mn})^3 (\text{Al Fe})]^2 \text{Si}^3$	3
	Muscovite*	$\frac{1}{3}(\text{R}^3 \text{R})^2 \text{Si}^3 + 2 (\text{R}^3 \text{R}) \text{Si}^3$	3
	Lepidolite*	$\frac{2}{3}(\text{R}^3 \text{R})^2 \text{Si}^3 + 2 (\text{R}^3 \text{R}) \text{Si}^3$	3
	Cryophyllite†	$[(\frac{2}{3} \text{R}^3 + \frac{1}{3} \text{R})^2 \text{Si}^3 + 3 \text{Si}]$	3
X. SCAPOLITE GROUP.			
Tetragonal, R : R 1 : 1. 1 : 2 & 1 : 3			
	Sarcolite	$(\frac{1}{3}(\frac{9}{10} \text{Ca} + \frac{1}{10} \text{Na})^3 + \frac{1}{3} \text{Al})^2 \text{Si}^3$	2
	Meionite	$(\frac{1}{3}(\frac{11}{11} \text{Ca} + \frac{1}{11} \text{Na})^3 + \frac{2}{3} \text{Al})^2 \text{Si}^3$	2
	Paranthite	$(\frac{1}{4} \text{Ca}^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3$	2

† R=K, Na, Mg R=Fe, Al § R=Li, K R=Al, Fe

| R=Li, K, Fe R=Al, Fe, Mn



No.	Name.	Formula.	System of crystallization.
	Wernerite*	$(\frac{1}{2}(\text{Ca Na})^3 + \frac{3}{2} \text{Al})^2 \text{Si}^3 + \text{Si}$	2
	Ekebergite*	$(\frac{1}{2}(\text{Ca Na})^3 + \frac{3}{2} \text{Al})^2 \text{Si}^3 + 3 \text{Si}$	2
	Mizzonite	$(\frac{1}{2}(\text{Ca Na})^3 + \frac{3}{2} \text{Al})^2 \text{Si}^3 + 2\frac{1}{2} \text{Si}$	2
	Dipyre	$(\frac{1}{2}(\frac{1}{2} \text{Na} + \frac{1}{2} \text{Ca})^3 + \frac{3}{2} \text{Al})^2 \text{Si}^3 + 6 \text{Si}$	2
	Marialite	$(\frac{1}{2}(\text{Na Ca})^3 + \frac{3}{2} \text{Al})^2 \text{Si} + 3 \text{Si}$	2

XI. NEPHELITE GROUP.

Hexagonal, R: H: 1: 3

Nephelite	$(\frac{1}{4}(\text{Na K Ca})^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3 + \frac{3}{4} \text{Si}$	6
Cancrinite*	$(\frac{1}{4}(\text{Na K Ca})^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3 + \frac{3}{4} \text{Si} + \text{Na O}$	6

XII. LEUCITE GROUP.

Monometric, R: H: 1: 3

Sodalite*	$(\text{Na}^3)^2 \text{Si}^3 + 3 \text{Al}^2 \text{Si}^3 + 2 \text{NaCl}$	1
Lapis Lazuli	Na, Ca, Al, Fe, Si, S	1
Häüynite	$(\text{Na}^3)^2 \text{Si}^3 + 3 \text{Al}^2 \text{Si}^3 + 4 \text{Ca S}$	1
Nosite	$(\text{Na}^3)^2 \text{Si}^3 + 3 \text{Al}^2 \text{Si}^3 + 2 \text{Na S}$	1
Leucite	$(\frac{1}{4} \text{K}^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3 + 3 \text{Si}$	1

XIII. FELDSPAR GROUP.

Monoclinic or Triclinic, R: H: 1: 3

Anorthite	$(\frac{1}{4} \text{Ca}^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3$	5
Labradorite*	$(\frac{1}{4}(\text{Ca Na})^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3 + \frac{3}{2} \text{Si}$	5
Andesite	$(\frac{1}{4}(\text{Na Ca})^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3 + 3 \text{Si}$	5
Hyalophane	$(\frac{1}{4}(\text{K Ba})^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3 + 3 \text{Si}$	4
Oligoclase*	$(\frac{1}{4}(\text{Na Ca})^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3 + 3\frac{1}{2} \text{Si}$	5
Albite*	$(\frac{1}{4} \text{Na}^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3 + 6 \text{Si}$	5
Orthoclase*	$(\frac{1}{4} \text{K}^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3 + 6 \text{Si}$	4

No.	Name.	Formula.	System of crystallization.
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III. SUBSILICATES.

Oxygen ratio of Bases and Silica, 4 : 3

Chondrodite*	$\text{Mg}^3 \text{Si}^3$	3
Tourmaline*	$\dagger(\text{R}^3 \text{R} \text{B})^3 \text{Si}^3$	6

Oxygen ratio of Bases to Silica, 3 : 2

Containing no Ti

Gehlenite	$(\frac{1}{2}(\text{Mg Fe Ca})^3 + \frac{1}{2}(\text{Al Fe}))^2 \text{Si}$	2
Andalusite*	Al Si	3
Fibrolite*	Al Si	4
Cyanite*	Al Si	5
Topaz*	Al Si , with F repl. $\frac{1}{6}$ of O	3
Euclase	$(\frac{1}{6} \text{H}^3 + \frac{2}{6} \text{Be}^3 + \frac{3}{6} \text{Al}) \text{Si}$	4
Datolite*	$(\text{Ca}^3 \text{H}^3 \text{B}) \text{Si}$	4

Containing Ti

Guarinite	$(\text{Ca} + \text{Ti}) \text{Si}$	2
Titanite*	$(\text{Ca} + \text{Ti}) \text{Si}$	4
Keilhaute	$\S(\text{R}^3 \text{R}_3 \text{R}) \text{Si}$	4
Tscheffkinit	$\parallel(\text{R}^3 \text{R}_3 \text{R}) \text{Si}$	

Oxygen ratio of Bases to Silica, 2 : 1

Staurolite*	$\Upsilon(\frac{1}{2} \text{R}^3 + \frac{1}{2} \text{Al})^4 \text{Si}^3$	3
Schorlomite*	$(\frac{4}{11} \text{Ca}^3 + \frac{3}{11} \text{Fe} + \frac{4}{11} \text{Ti}_3)^4 \text{Si}^3$	
Sapphirine	$(3 \text{Mg} + 4 \text{Al} + 1 \frac{1}{2} \text{Si})$	3 ?

 $\dagger \text{R} = \text{Na}, \text{Ca}, \text{Mg}, \text{Fe} \quad \text{R} = \text{Al}, \text{Fe}$ $\S \text{R} = \text{Ca}, \text{Y} \quad \text{R} = \text{Ti} \quad \text{R} = \text{Al}, \text{Fe}$ $\parallel \text{R} = \text{Ca}, \text{Mg}, \text{Ce}, \text{La}, \text{Di}, \text{Y}, \text{Ti}, \text{Ni} \quad \text{R} = \text{Th}, \text{Ti} \quad \text{R} = \text{Fe}$ $\Upsilon \text{R} = \text{Fe}, \text{Mg} \quad \text{R} = \text{Al}, \text{Mn}, \text{Fe}$

No.	Name.	Formula.	System of crystallization.
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Appendix to Anhydrous Silicates.

Eulytite	$\text{Bi}^4 \text{Si}^3$	1
Atelestite	Bi, Si	4
Hypochlorite	Al, Fe, Bi, Si, P	
Isopyre	$\text{Ca, Al, Fe, Cu, Si}$	
Hessenbergite		4

B. HYDROUS SILICATES.

I. GENERAL SECTION OF HYDROUS SILICATES.

I. BISILICATES.

I. PECTOLITE GROUP.

Pectolite*	$(\frac{4}{6} \text{Ca} + \frac{1}{6} \text{Na} + \frac{1}{6} \text{H}) \text{Si}$	4
Xonaltite	$\text{Ca Si} + \frac{1}{2} \text{H}$	
Okenite	$(\frac{1}{2} \text{Ca} + \frac{1}{2} \text{H}) \text{Si} + \frac{1}{2} \text{H}$	3 ?
Gyrolite	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{H}) \text{Si} + \text{H}$	
Laumontite*	$(\frac{1}{2} \text{Ca}^3 + \frac{2}{3} \text{Al}) \text{Si}^3 + 3 \text{H}$	4

II. DIOPTAISE GROUP.

Catapleiite	$((\frac{1}{3} \text{Na Ca})^2 + \frac{2}{3} \text{Zr}) \text{Si}^2 + 1\frac{1}{2} \text{H}$	6
Diophtase	$\text{Cu Si} + \text{H}$	6
Chrysocolla*	$\text{Cu Si} + 2 \text{H}$	
Alipite	$(\frac{1}{3} \text{H} + \frac{2}{3} (\text{Mg Ni})) \text{Si}$	
Conarite	$(\frac{1}{3} \text{H} + \frac{2}{3} \text{Ni}) \text{Si} + \frac{2}{3} \text{Ni}$	4 ?

III. PICROSMINE GROUP.

Picrosmine	$\text{Mg Si} + \frac{1}{2} \text{H}$	2
Spadaite	$(\frac{2}{3} \text{Mg} + \frac{1}{3} \text{H}) \text{Si} + \frac{1}{2} \text{H}$	

Appendix to Hydrous Silicates.

Neolite	$\dagger (\text{R}^3 \text{Al H}^3) \text{Si}^3$	
Anthosiderite	$\text{Fe}^2 \text{Si}^2 + 2 \text{H}$	
	$\dagger \text{R} = \text{Ca, Mg, Fe}$	

No.	Name.	Formula.	System of crystallization.
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II. UNISILICATES.

I. CALAMINE GROUP.

Calamine*	$\text{Zn}^2 \text{Si} + \text{H}$	3
Villarsite	$(\frac{1}{2} \text{Mg} + \frac{1}{2} \text{Fe})^2 \text{Si} + \frac{1}{2} \text{H}$	3
Prehnite*	$(\frac{1}{6} \text{H}^3 + \frac{2}{6} \text{Ca} + \frac{3}{6} \text{Al})^2 \text{Si}^3$	3
Chlorastrolite †	$(\text{Ca}^3 \text{Na}^3)^2 \text{Si}^3 + 2(\text{Al Fe})^2 \text{Si}^3 + 6 \text{H}$	

II. THORITE GROUP.

Tritomite	$\text{Ce, La, Ca, W, Al, Si, H}$	1
Thorite	$\text{Th Si} + \frac{1}{2} \text{H}$	1
Cerite	$(\text{Ce La Di})^2 \text{Si} + \text{H}$	1 ?
Erdmannite	$\text{Ce, La, Fe, Mn, Y, Ca, Al, Si, H}$	

III. PYROSMALITE GROUP.

Pyrosmalite	$(\frac{1}{2} \text{H} + \frac{3}{2} (\text{Fe Mn, FeCl}))^2 \text{Si}$	6
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IV. APOPHYLLITE GROUP.

Apophyllite*	$(\text{H K Ca})^2 \text{Si} + \text{H Si}$	2
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V. GISMONDITE GROUP.

Edingtonite	$(\frac{2}{3} (\frac{3}{2} \text{H} + \frac{1}{2} \text{Ba})^3 + \frac{1}{3} \text{Al})^2 \text{Si}^3 + 1\frac{2}{3} \text{H}$	2
Gismondite	$(\frac{3}{2} \text{Ca} + \frac{1}{2} \text{K}) + \text{Al, 2Si, 4H}$	3

VI. CARPHOLITE GROUP.

Carpholite	$(\text{Al Mn Fe})^2 \text{Si}^3 + 3 \text{H}$	3
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III. SUBSILICATES.

Allophane*	$\text{Al Si} + 6 \text{H}$	
Collyrite	$\text{Al}^2 \text{Si} + 9 \text{H}$	
Schroetterite	$\text{Al}^6 \text{Si}^3 + 30 \text{H}$	

No.	Name.	Formula.	System of crystal. z. atom.
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II. ZEOLITE SECTION.

I. UNISILICATES.

Thomsonite*	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{Na}), \text{Al}, 2 \text{Si}, 2\frac{1}{2} \text{H}$	3
Natrolite*	$\text{Na}, \text{Al}, 3 \text{Si}, 2 \text{H}$	3
Scolecite	$\text{Ca}, \text{Al}, 3 \text{Si}, 3 \text{H}$	4
Mesolite	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{Na}), \text{Al}, 3 \text{Si}, 3 \text{H}$	5 ?
Levynite	$(\text{Ca Na K}), \text{Al}, 3 \text{Si}, 4 \text{H}$	6

II. BISILICATES.

Analcite*	$\text{Na}, \text{Al}, 4 \text{Si}, 2 \text{H}$	1
Eudnophite	$\text{Na}, \text{Al}, 4 \text{Si}, 2 \text{H}$	3
Faujasite	$(\frac{1}{2} \text{Ca} + \frac{1}{2} \text{Na}), \text{Al}, 4\frac{1}{2} \text{Si}, 9 \text{H}$	1
Chabazite*	$(\frac{2}{3} \text{Ca} + \frac{1}{3} (\text{Na K})), \text{Al}, 4 \text{Si}, 6 \text{H}$	6
Gmelinite	$(\frac{1}{3} \text{Ca} + \frac{2}{3} (\text{Na K})), \text{Al}, 4 \text{Si}, 6 \text{H}$	6
Herschelite	$(\frac{2}{3} \text{Na} + \frac{1}{3} \text{K}), \text{Al}, 4 \text{Si}, 5 \text{H}$	3
Phillipsite	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{K}), \text{Al}, 4 \text{Si}, 5 \text{H}$	3
Harmotome	$\text{Ba}, \text{Al}, 5 \text{Si}, 5 \text{H}$	4
Hypostilbite	$(\frac{1}{3} \text{Ca} + \frac{2}{3} \text{Na}), \text{Al}, 4\frac{1}{2} \text{Si}, 6 \text{H}$	
Stilbite*	$\text{Ca}, \text{Al}, 6 \text{Si}, 6 \text{H}$	3
Epistilbite	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{Na}), \text{Al}, 6 \text{Si}, 5 \text{H}$	3
Heulandite*	$\text{Ca}, \text{Al}, 6 \text{Si}, 5 \text{H}$	4
Brewsterite	$(\frac{2}{3} \text{Sr} + \frac{1}{3} \text{Ba}), \text{Al}, 6 \text{Si}, 5 \text{H}$	4
Mordenite	$(\frac{2}{3} \text{Ca} + \frac{1}{3} \text{Na}), \text{Al}, 9 \text{Si}, 6 \text{H}$	
Sloanite	$\text{Ca}, \text{Mg}, \text{Al}, \text{Si}, \text{H}$	3

III. MARGAROPHYLLITE SECTION.

I. BISILICATES.

I. TALC GROUP.

Talc*	$(\frac{1}{3} \text{H} + \frac{2}{3} \text{Mg}) \text{Si}$	3
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No.	Name.	Formula.	System of crystallization.
	Pyrophyllite*	$(\frac{1}{2} \text{H}^3 + \frac{4}{3} \text{Al}) \text{Si}^3 + \frac{1}{2} \text{H}$	3
	Pihlilite*	$(\frac{1}{3}(\frac{1}{2} \text{H} + \frac{1}{2} \text{K})^3 + \frac{4}{3} \text{Al}) \text{Si}^3$	
II. SEPIOLITE GROUP.			
	Sepiolite	$(\frac{2}{3} \text{Mg} + \frac{1}{3} \text{H}) \text{Si} + \frac{1}{3} \text{H}$	
	Aphrodite	$\text{Mg Si} + \frac{2}{3} \text{H}$	
	Cimolite	$\text{Al}^2 \text{Si}^3 + 3 \text{H}$	
	Smectite*	$(\frac{1}{2} \text{H}^3 + \frac{1}{2} \text{Al}) \text{Si}^3 + 4\frac{1}{2} \text{H}$	
	Montmorillonite	$(\frac{2}{3} \text{Al}^4 + \frac{1}{3} \text{H}^3) \text{Si}^3 + 5 \text{H}$	
III. CHLOROPAL GROUP.			
	Stilpnomelane*	$((\text{Fe}, \text{Mg})^2 (\text{Al}, \text{Fe})) \text{Si}^3 + 2 \text{H}$	
	Chloropal	$(\text{Fe}^3 \text{Fe}) \text{Si}^3 + 4\frac{1}{2} \text{H}$	
	Glaucönite*	$(\frac{1}{2} \text{Fe} + \frac{1}{2} \text{K})^2 \text{Si}^3 + 2 (\frac{2}{3} \text{Fe} + \frac{1}{3} \text{Al}) \text{Si}^3 + 6 \text{H}$	
	Celadonite	$\text{K}, \text{Mg}, \text{Fe}, \text{Si}, \text{H}$	
II. UNISILICATES.			
IV. SERPENTINE GROUP.			
	Serpentine*	$(\frac{1}{4} \text{H} + \frac{3}{4} \text{Mg})^2 \text{Si} + \frac{1}{2} \text{H}$	3 ?
	Deweylite*	$(\frac{1}{3} \text{H} + \frac{2}{3} \text{Mg}) \text{Si} + \frac{4}{3} \text{H}$	
	Cerolite*	$(\frac{1}{2} \text{H} + \frac{1}{2} \text{Mg}) \text{Si} + \frac{1}{2} \text{H}$	
	Hydrophite*	$[\frac{1}{2} \text{H} + \frac{3}{2} (\text{Mg Fe})]^2 \text{Si} + \frac{4}{3} \text{H}$	
	Genthite*	$(\frac{1}{3} \text{H} + \frac{2}{3} (\text{Ni Mg}))^2 \text{Si} + \frac{4}{3} \text{H}$	
	Saponite*	$\text{Mg}, \text{Al}, \text{Fe}, \text{Si}, \text{H}$	
V. KAOLINITE GROUP.			
	Pholerite*	$\text{Al}^2 \text{Si}^3 + 4 \text{H}$	3
	Kaolinite*	$(\frac{1}{4} \text{H}^3 + \frac{3}{4} \text{Al})^2 \text{Si}^3$	3
	Halloysite*	$\text{Al Si}^2 + 3 \text{H}$	
	Samoite	$\text{Al}^2 \text{Si}^3 + 10 \text{H}$	

No.	Name.	Formula.	System of crystalliza- tion.
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VI. PINITE GROUP.

Pinite*	$(\frac{1}{2} \text{H}^3 + \frac{3}{4} (\text{K}^3 \text{Al}))^2 \text{Si}^3$	
Cataspillite	$(\frac{3}{8} (\text{Na K Ca Mg})^3 + \frac{5}{8} \text{Al})^2 \text{Si}^3 + \frac{3}{4} \text{H}$	
Biharite	$(\frac{3}{8} (\text{Mg Ca})^3 + \frac{1}{8} \text{Al})^2 \text{Si}^3 + 1\frac{1}{2} \text{H}$	
Palagonite*	$(\frac{1}{2} \text{H}^3 + \frac{3}{4} (\text{Ca Mg})^3 + (\text{Fe Al}))^2 \text{Si}^3 + n \text{H}$	

VII. MARGARODITE GROUP.

Fahlunite*	$(\frac{2}{3} (\text{H Mg Fe})^3 + \frac{2}{3} (\text{Al Fe}))^2 \text{Si}^3$	
Voigtite	$(\frac{1}{2} (\text{Fe Mg})^3 + \frac{1}{2} (\text{Al Fe}))^2 \text{Si}^3 + 3 \text{H}$	
Margarodite*	$(\frac{1}{4} (\text{H}^3 \text{K}^3) + \frac{3}{4} \text{Al})^2 \text{Si}^3$	3
Damourite	$(\frac{1}{4} (\frac{3}{8} \text{H} + \frac{1}{8} \text{K})^3 + \frac{3}{4} (\text{Al Fe}))^2 \text{Si}^3$	
Paragonite	$(\frac{1}{4} (\text{H}^3 \text{Na}^3) + \frac{3}{4} \text{Al})^2 \text{Si}^3$	
Euphyllite†	$(\frac{1}{3} (\text{K Na})^3 + \frac{2}{3} \text{Al})^2 \text{Si}^3 + \frac{4}{3} \text{H}$	
Ællacherite	$(\frac{1}{3} (\text{H}^3 (\text{K Ba Mg})^3) + \frac{2}{3} \text{Al})^2 \text{Si}^3$	
Cookeite †	Li, K, Al, Si, H	

VIII. HISINGERITE GROUP.

Hisingerite	$[(\text{Mg Fe})^3 (\text{Al Fe})]^2 \text{Si}^3 + 4 \text{H}$	
Ekmannite	$(\frac{1}{3} \text{H}^3 + \frac{2}{3} (\text{Fe Mn})^3)^2 \text{Si}^3 + \frac{1}{3} \text{H}$	
Neotocite	$(\frac{1}{3} \text{H}^3 + \frac{2}{3} (\text{Mg}^3 \text{Mn}^3 \text{Fe}))^2 \text{Si}^3 + 3 \text{H}$	
Gillingite	$[(\text{Ca Mg Fe})^3 \text{Fe}]^2 \text{Si}^3 + 6 \text{H}$	
Jollyte	$(\frac{1}{3} (\text{Fe Mg})^3 + \frac{2}{3} \text{Al})^2 \text{Si}^3 + 4 \text{H}$	

III. SUBSILICATES.

I. CHLORITE GROUP.

Pyrosclerite	$(\frac{3}{8} \text{Mg}^3 + \frac{1}{8} \text{Al})^2 \text{Si}^3 + 3 \text{H}$	4 ?
Chonierite	$(\frac{3}{8} (\text{Ca, Mg})^3 + \frac{2}{8} \text{Al})^2 \text{Si}^3 + 3 \text{H}$	
Jefferisite †	$(\frac{2}{3} \text{Mg}^3 + \frac{2}{3} (\text{Al Fe}))^2 \text{Si}^3 + 3 \text{H}$	3 ?
Penninite*	8 (Mg ³ Al), 9 Si, 12 H	6

No.	Name.	Formula.	System of crystallization.
	Ripidolite*	$5 \text{ Mg, Al, } 3 \text{ Si, } 4 \text{ H}$	4
	Leuchtenbergite	$(\frac{3}{2} \text{ Mg}^3 + \frac{2}{3} \text{ Al}) \text{ Si} + 1\frac{1}{2} \text{ H}$	6
	Prochlorite*	$(\frac{4}{7} (\text{Mg Fe})^3 + \frac{2}{7} \text{ Al}) \text{ Si} + \frac{4}{3} \text{ H}$	6 ?
	Cronstedtite	$(\frac{1}{2} (\text{Fe Mn})^3 + \frac{1}{2} \text{ Fe}) \text{ Si} + \frac{3}{2} \text{ H}$	6
II. CHLORITOID GROUP.			
	Corundophilite†	$(\frac{1}{2} (\text{Mg Fe})^3 + \frac{1}{2} \text{ Al})^4 \text{ Si}^3 + 5 \text{ H}$	4
	Chloritoid*	$(\frac{1}{4} (\text{Fe Mg})^3 + \frac{3}{4} \text{ Al})^4 \text{ Si}^3 + 3 \text{ H}$	5 ?
	Margarite*	$(\frac{1}{4} (\text{Ca H})^3 + \frac{3}{4} \text{ Al})^4 \text{ Si}^3$	3
	Thuringite*	$(\frac{1}{2} (\text{Fe H})^3 + \frac{1}{2} (\text{Al Fe}))^4 \text{ Si}^3 + 4 \text{ H}$	
III. SEYBERTITE GROUP.			
	Seybertite*	$(\frac{2}{3} (\text{Ca Mg Fe})^3 + \frac{2}{3} \text{ Al})^3 \text{ Si} + \frac{1}{2} \text{ H}$	3
<i>Appendix.</i>			
	Wolchonskoite	$\text{Mg, Al, Cr, Fe, Si, H}$	
	Pimelite	Ni, Al, Fe, Si, H	
	Chlorophæite	$\text{Fe Si} + 6 \text{ H} ?$	
	Chamoisite	Fe, Al, Si, H	
POTASSIUM			
	Nitre*	K N	3
	Aphthitalite	K S	3
	Misenite	$\text{K S} + \text{H S}$	
	Taylorite	$(\frac{5}{6} \text{ K} + \frac{1}{6} \text{ NH}) \text{ S}$	
	Picromerite	$\text{K S} + \text{Mg S} + 6 \text{ H}$	4
	Cyanochoite	$(\frac{1}{2} \text{ K} + \frac{1}{2} \text{ Cu}) \text{ S} + 3 \text{ H}$	4
	Sylvite	KCl	1
SODIUM.			
	Soda nitre	Na N	6

No.	Name.	Formula.	System of crystallization.
	Thenardite	Na S	3
	Mirabilite*	$\text{Na S} + 10 \text{ H}$	4
	Lecontite	$(\text{K Na NH}^4) \text{ S} + 2 \text{ H}$	3
	Glauberite*	$(\frac{1}{2} \text{ Na} + \frac{1}{2} \text{ Ca}) \text{ S}$	4
	Lœweite	$(\frac{1}{2} \text{ Na} + \frac{1}{2} \text{ Mg}) \text{ S} + 1\frac{1}{4} \text{ H}$	2
	Halite*	NaCl	1
	Stercorite	$\text{Na NH}^4 \text{ P} + 9 \text{ H}$	
	Borax*	$\text{Na B}^3 + 10 \text{ H}$	4
	Thermonatrite*	$\text{Na C} + \text{H}$	3
	Natron*	$\text{Na C} + 10 \text{ H}$	4
	Trona*	$\text{Na}^2 \text{ C}^3 + 4 \text{ H}$	4
	Gay-Lussite*	$\text{Na C} + \text{Ca C} + 5 \text{ H}$	4
	AMMONIUM.		
	Mascagnite*	$\text{NH}^4 \text{ S} + \text{H}$	3
	Sal ammoniac	$\text{NH}^4 \text{ Cl}$	1
	Struvite	$\text{NH}^4 \text{ Mg}^2 \text{ P} + 12 \text{ H}$	3
	Larderellite	$\text{NH}^4 \text{ B}^4 + 4 \text{ H}$	
	Teschemacherite	$(\frac{1}{2} \text{ NH}^4 + \frac{1}{2} \text{ H}) \text{ C}$	
	BARIUM.		
	Barite*	Ba S	3
	Dreelite	$\text{Ca S} + 3 \text{ Ba S}$	6
	Witherite*	Ba C	3
	Bromlite	$\text{Ba C} + \text{Ca C}$	3
	Barytocalcite	$\text{Ba C} + \text{Ca C}$	4
	STRONTIUM.		
	Celestite*	Sr S	3

No.	Name.	Formula.	System of crystalliza- tion.
	Strontianite*	$\text{Sr } \bar{\text{O}}$	3
	CALCIUM.		
	Nitrocalcite*	$\text{Ca } \bar{\text{N}} + \bar{\text{H}}$	
	Anhydrite*	$\text{Ca } \bar{\text{S}}$	3
	Gypsum*	$\text{Ca } \bar{\text{S}} + 2 \bar{\text{H}}$	4
	Polyhalite	$(\text{K Mg Ca}) \bar{\text{S}} + \frac{1}{2} \bar{\text{H}}$	3 ?
	Fluorite*	Ca F	1
	Apatite*	$\text{Ca}^2 \bar{\text{P}} + \frac{1}{2} \text{Ca (Cl, F)}$	6
	Brushite	$(\frac{1}{2} \bar{\text{H}} + \frac{2}{3} \text{Ca})^2 \bar{\text{P}} + 4 \bar{\text{H}}$	4
	Metabrushite	$(\frac{1}{2} \bar{\text{H}} + \frac{2}{3} \text{Ca})^2 \bar{\text{P}} + 3 \bar{\text{H}}$	4
	Tavistockite	$(\frac{1}{2} \text{Ca}^2 + \frac{1}{2} \bar{\text{Al}})^2 \bar{\text{P}} + 3 \bar{\text{H}}$	
	Haidingerite	$(\frac{1}{2} \bar{\text{H}} + \frac{2}{3} \text{Ca})^2 \bar{\text{As}} + 3 \bar{\text{H}}$	3
	Pharmacolite	$(\frac{1}{2} \bar{\text{H}} + \frac{2}{3} \text{Ca})^2 \bar{\text{As}} + 5 \bar{\text{H}}$	4
	Berzeliite	$(\text{Ca Mg Mn})^{10} \bar{\text{As}}^3$	
	Rhodizite	$\text{Ca}^2 \bar{\text{B}}^4 ?$	1
	Hydroboracite	$\text{Ca}^2 \bar{\text{B}}^4 + \text{Mg}^2 \bar{\text{B}}^4 + 18 \bar{\text{H}}$	
	Bechilite	$(\frac{1}{2} \text{Ca} + \frac{1}{2} \bar{\text{H}}) \bar{\text{B}} + 1 \frac{1}{2} \bar{\text{H}}$	
	Howlite	$2(\text{Ca } \bar{\text{B}}^2 + \bar{\text{H}}) + \bar{\text{H}}^2 \bar{\text{B}} + 2 \text{Ca Si}$	
	Ulexite*	$(\frac{1}{2}(\bar{\text{Na}}, \text{Ca}) + \frac{1}{2} \bar{\text{H}}) \bar{\text{B}} + \frac{5}{2} \bar{\text{H}}$	
	Cryptomorphite	$(\frac{1}{2}(\bar{\text{Na}}, \text{Ca}) + \frac{1}{2} \bar{\text{H}}) \bar{\text{B}} + \bar{\text{H}} ?$	
	Aragonite*	$\text{Ca } \bar{\text{O}}$	3
	Calcite*	$\text{Ca } \bar{\text{O}}$	6
	Dolomite*	$\text{Ca } \bar{\text{O}} + \text{Mg } \bar{\text{O}}$	6
	Ankerite	$\text{Ca } \bar{\text{O}} + (\text{Mg Fe Mn}) \bar{\text{O}}$	6
	Hydrodolomite*	$(\text{Ca Mg}) \bar{\text{O}} + \frac{1}{2} \bar{\text{H}}$	
	Predazzite	$2 \text{Ca } \bar{\text{O}} + \text{Mg } \bar{\text{H}}$	

No.	Name.	Formula.	System of crystallization.
	Pencatite	$\text{Ca } \ddot{\text{O}} + \text{Mg } \text{H}$	
	Hovite	$(\frac{1}{2} \text{Ca} + \frac{1}{2} \text{H}) \ddot{\text{O}} + \text{Aq}$	
	Whewellite	$\text{Ca } \ddot{\text{O}}$	4
	Perovskite	$\text{Ca } \text{Ti}$	1
	Azorite*	$\text{Ca } \ddot{\text{O}}\text{b}$	2
	Scheelite	$\text{Ca } \text{W}$	2
	Microlite†	$\text{Ca}, \ddot{\text{O}}\text{b} (\text{Ta} ?)$	1
	Cuproscheelite*	$\text{Cu } \text{W} + 2 \text{Ca } \text{W}$	
	Romeite	$\text{Ca}^3, \ddot{\text{S}}\text{b}, \ddot{\text{S}}\text{b}$	2
	MAGNESIUM.		
	Periclasite	Mg	1
	Brucite*	$\text{Mg } \text{H}$	6
	Pyroaurite	$(\frac{2}{3} \text{Mg}^3 + \frac{1}{3} \text{Fe}) \text{H}^3 + 2 \text{H}$	6
	Hydrotalcite*	$6 \text{Mg } \text{H} + \text{Al } \text{H}^3 + 6 \text{H}$	6
	Nitromagnesite ?	$\text{Mg } \text{N} + n \text{H}$	
	Kieserite	$\text{Mg } \ddot{\text{S}} + \text{H}$	3
	Epsomite*	$\text{Mg } \ddot{\text{S}} + 7 \text{H}$	3
	Blædite	$(\frac{1}{2} \text{Na} + \frac{1}{2} \text{Mg}) \ddot{\text{S}} + 2 \text{H}$	
	Carnallite	$\text{K } \text{Cl} + 2 \text{Mg } \text{Cl} + 12 \text{H}$	
	Tachydrite	$\text{Ca } \text{Cl} + 2 \text{Mg } \text{Cl} + 12 \text{H}$	
	Wagnerite	$\text{Mg}^3 \text{P} + \text{Mg } \text{F}$	4
	Bobierite	$\text{Mg}^3 \text{P} + a \text{q}$	4
	Hørnesite	$\text{Mg}^3 \text{As} + 8 \text{H}$	4
	Rösslerite	$(\frac{2}{3} \text{Mg} + \frac{1}{3} \text{H})^3 \text{As} + 12 \text{H}$	
	Boracite	$\text{Mg}^3 \text{B}^4 + \frac{1}{2} \text{Mg } \text{Cl}$	1
	Szaibelyite	$3 \text{Mg}^5 \text{B}^2 + 4 \text{H}$	
	Warwickite†	$\text{Mg}, \text{Fe}, \text{Ti}, \text{B}$	4 ?
	Magnesite*	$\text{Mg } \ddot{\text{O}}$	6

No.	Name.	Formula.	System of crystallization.
	Mesitite	$2 \text{ Mg } \bar{\text{C}} + \text{Fe } \bar{\text{C}}$	6
	Hydromagnesite*	$3(\text{Mg } \bar{\text{C}} + \text{H}) + \text{Mg } \bar{\text{H}}$	4
ALUMINIUM.			
	Corundum*	$\bar{\text{Al}}$	6
	Diaspore*	$\bar{\text{Al}} \bar{\text{H}}$	3
	Gibbsite*	$\bar{\text{Al}} \bar{\text{H}}^3$	6
	Beauxite	$(\bar{\text{Al}} \text{ Fe}) \bar{\text{H}}^3$	
	Spinel*	$\text{Mg } \bar{\text{Al}}$	1
	Hercynite	$\text{Fe } \bar{\text{Al}}$	1
	Gahnite*	$\text{Zn } \bar{\text{Al}}$	1
	Chrysoberyl*	$\text{Be } \bar{\text{Al}}$	3
	Alumian	$\bar{\text{Al}} \bar{\text{S}}^2 ?$	6 ?
	Alunogen*	$\bar{\text{Al}} \bar{\text{S}}^2 + 18 \bar{\text{H}}$	4
	Tschermigite	$\text{NH}^4 \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 24 \bar{\text{H}}$	1 ?
	Kalinite*	$\bar{\text{K}} \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 24 \bar{\text{H}}$	1
	Mendozite	$\bar{\text{Na}} \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 22 \bar{\text{H}}$	
	Pickeringite	$\text{Mg } \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 22 \bar{\text{H}}$	4 ?
	Apjohnite	$\bar{\text{Mn}} \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 24 \bar{\text{H}}$	
	Bosjemanite*	$(\text{Mg } \bar{\text{Mn}}) \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 22 \bar{\text{H}}$	4 ?
	Halotrichite*	$\text{Fe } \bar{\text{S}} + \bar{\text{Al}} \bar{\text{S}}^2 + 22 \bar{\text{H}}$	
	Aluminite	$\bar{\text{Al}} \bar{\text{S}} + 9 \bar{\text{H}}$	
	Alunite	$\bar{\text{K}} \bar{\text{S}} + 3 \bar{\text{Al}} \bar{\text{S}} + 6 \bar{\text{H}}$	6
	Loewigite	$\bar{\text{K}} \bar{\text{S}} + 3 \bar{\text{Al}} \bar{\text{S}} + 9 \bar{\text{H}}$	
	Paraluminite	$\bar{\text{Al}}^2 \bar{\text{S}} + 15 \bar{\text{H}}$	
	Pissophanite	$(\bar{\text{Al}}, \text{Fe})^5 \bar{\text{S}}^2 + 30 \bar{\text{H}}$	
	Felsobanyite	$\bar{\text{Al}}^2 \bar{\text{S}} + 10 \bar{\text{H}}$	3

No.	Name.	Formula.	System of crystallization.
	Fluellite	Al, F,	3
	Cryolite	3 Na F + Al ³ F ³	5
	Arksutite	(Na Ca) ² F + Al ³ F ³	
	Chiolite	3 Na F + 2 Al ³ F ³	2
	Chodoneffite	2 Na F + Al ³ F ³	
	Pachnolite	3(Na Ca) F + Al ³ F ³ + 2 H	4
	Thomsenolite	2(Na Ca) F + Al ³ F ³ + 2 H	4
	Gearksutite	Ca ² F + Al ³ F ³ + 4 H	
	Prosopite	$\frac{3}{2}$ Si F ² , Al F ³ , 5 Al, 2 Ca F, 4 Ca, 12 H	4
	Amblygonite*	$[\frac{1}{2}(\text{Li, Na})^3 + \frac{3}{4} \text{Al}]^4 \text{P}$	5
	Herderite	Ca, Al, P, F	3
	Berlinite	Al P + $\frac{1}{2}$ H	
	Callainite	Al P + 5 H	
	Angelite	Al ³ P + 3 H	
	Lazulite*	Al P + Mg H	4
	Barrandite	$(\frac{1}{2} \text{Fe} + \frac{3}{2} \text{Al}) \text{P} + 4 \text{H}$	
	Trolleite	Al ³ P + $\frac{1}{2}$ Al H ³	
	Cirrolite	Al ³ P + 2 Ca ³ P + 3 H	
	Turquoise*	Al ³ P + 5 H	
	Pegonite	Al ³ P + 6 H	3
	Fischerite*	Al ³ P + 8 H	3
	Evansite	Al ³ P + Al H ³ + 15 H	
	Wavellite*	Al ³ P ² + 12 H	3
	Sphærite	Al ³ P ² + 16 H	
	Svanbergite	$3(\frac{1}{2} \text{Ca}^3 + \frac{1}{2} \text{Al})^2 \text{P} + 5 \text{Al S} + \text{Al H}^3 + 15 \text{H}$	6
	Durangite	$[\frac{1}{2}(\text{Li, Na})^3 + \frac{1}{4}(\text{Al, Fe})] \text{As}$	4
	Mellite	Al M ³ + 18 H	2

No.	Name.	Formula.	System of crystallization.
ZIRCONIUM.			
Polymignite	Ti, Ca, Y, Zr, Th, Fe, Mn		3
Pyrrhite	Zr, Th ?		1
YTTRIUM.			
Xenotime*	Y ³ P		2
Tengerite	Y Th		
Yttrotantalite	(Ca Y Fe U) ¹⁰ Ta ³		3
Euxenite	Ca, Y, Ce, La, U, Ti, Ta, Th		3
Fergusonite	[(Ca Fe U Ce Y) ² (Sn Zr)] ⁶ Th ³		2
CERIUM.			
Yttrocerite*	Ca F, Ce F, Y F		
Fluocerite	Ce F + Ce ² F ³		6
Cryptolite	Ce ³ P		
Monazite*	(Ce La Di Th ³) ³ P		4
Churchite	(⁵ / ₆ Ce + ¹ / ₆ Ca) ³ P + 4 H		4 ?
Rutherfordite †	Ca, Ce, Ti ?		4
Pyrochlore	(Ca Ce) ² Th ?		1
Æschynite	Ce, La, Y, Fe, Ti, Ta, Th		3
LANTHANUM.			
Parisite	(Ce La Di) Th + ¹ / ₃ (Ca Ce) F		6
Kischtimite	6 La Th + Th + Ce ² F ³ + 2 H		
Lanthanite*	La Th + 3 H		3
IRON.			
Native Iron*	Fe		1
Magnetite*	Fe Fe		1
Magnesianferrite	Mg Fe		1

No.	Name.	Formula.	System of crystallization.
	Hematite*	Fe	6
	Franklinite*	$(\text{Fe Zn Mn}) (\text{Fe Mn})$	1
	Turgite*	$\text{Fe}^2 \text{H}$	
	Goethite*	Fe H	3
	Limonite*	$\text{Fe}^2 \text{H}^3$	
	Xanthosiderite	Fe H^2	
	Limnite	Fe H^3	
	Troilite	Fe S	
	Pyrrhotite*	$\text{Fe}^7 \text{S}^3$	6
	Pyrite*	Fe S^2	1
	Marcasite*	Fe S^2	3
	Pentlandite	$(\frac{1}{3} \text{Ni} + \frac{2}{3} \text{Fe}) \text{S}$	1
	Pettkoite	$(\text{Fe}^3 \text{Fe}) \text{S}^2$	1
	Tauriscite	$\text{Fe S} + 7 \text{H} ?$	3
	Melanterite*	$\text{Fe S} + 7 \text{H}$	4
	Pisanite	$(\text{Fe Cu}) \text{S} + 7 \text{H}$	
	Coquimbite	$\text{Fe S}^3 + 9 \text{H}$	6
	Voltaite	$\text{Fe S} + \text{Fe S}^3 + 24 \text{H}$	1
	Römerite	$\text{Fe S} + \text{Fe S}^3 + 12 \text{H}$	4
	Copiapite	$\text{Fe}^2 \text{S}^5 + 18 \text{H}$	6 ?
	Raimondite	$\text{Fe}^2 \text{S}^3 + 7 \text{H}$	6
	Fibroferrite	$\text{Fe}^3 \text{S}^2 + 27 \text{H}$	
	Apatelite	$\text{Fe}^3 \text{S}^3 + 2 \text{H}$	
	Botryogen	$\text{Fe}^3 \text{S}^2 + 3 \text{Fe S}^2 + 36 \text{H}$	4
	Jarosite*	$(\text{K, Na}) \text{S} + 4 \text{Fe S} + 9 \text{H}$	6
	Carphosiderite	$(\frac{1}{3} \text{Fe} + \frac{1}{3} \text{H}^3) \text{S} + 2 \text{H}$	

No.	Name.	Formula.	System of crystallization.
	Glockerite	$\text{Fe}^3 \text{S} + 6 \text{H}$	
	Schreibersite*	Fe, Ni, P	
	Triphylite*	$(\text{Fe Mn Li})^3 \text{P}$	3
	Vivianite*	$\text{Fe}^3 \text{P} + 8 \text{H}$	4
	Childrenite	$2 (\text{Fe Mn})^4 \text{P} + \text{Al}^2 \text{P} + 15 \text{H}$	3
	Dufrenite	$\text{Fe}^2 \text{P} + 3 \text{H}$	3
	Cacoxenite	$\text{Fe}^2 \text{P} + 12 \text{H}$	
	Borickite	$(\text{Ca}^3 \text{Fe})^6 \text{P}^2 + 15 \text{H}$	
	Diadochite	$\text{Fe}^3 \text{P}^2 + 2 \text{Fe S}^2 + 32 \text{H}$	
	Beudantite	$\text{Fe, Pb, Cu, H, S, P, As}$	6
	Leucopyrite*	Fe As^2	3
	Loellingite	$\text{Fe As} + \text{Fe As}^2$	3
	Arsenopyrite*	$\text{Fe S}^2 + \text{Fe As}^2$	3
	Pacite	$\text{Fe S}^2 + 4 \text{Fe As}^2$	3
	Carminite	$5 \text{Fe As} + \text{Pb}^3 \text{As}$	3
	Symplectite	$\text{Fe}^3 \text{As} + 8 \text{H}$	4
	Scorodite*	$\text{Fe As} + 4 \text{H}$	3
	Pharmacosiderite	$3 \text{Fe As} + \text{Fe H}^3 + 12 \text{H}$	1
	Arseniosiderite	$\text{Ca}^6 \text{As} + 4 \text{Fe}^2 \text{As} + 15 \text{H}$	
	Pitticite	$\text{Fe As} + \text{Fe S} + 15 \text{H}$	
	Molybite	$\text{Fe}^2 \text{Cl}^3$	
	Kremersite	$\text{K Cl} + \text{NH}^4 \text{Cl} + \text{Fe}^2 \text{Cl}^3 + 3 \text{H}$	1
	Siderite*	Fe O	6
	Pistomesite	$\text{Mg O} + \text{Fe O}$	6
	Chromite*	Fe Cr	1
	Lagonite	$\text{Fe B}^3 + 3 \text{H}$	

No.	Name.	Formula.	System of crystallization.
	Menaccanite*	(Fe, Mn, Mg) Ti+n Fe	6
	Mengite	Fe, Ti, Zr	3
	Parathorite₁	Fe, Ti ?	3
	Tantalite	(Fe Mn) Ta	3
	Columbite	(Fe Mn) (Cb Ta)	3
	Tapiolite	Fe ⁵ Ta ⁴	2
	Hielmite	Ca, Y, Mg, Fe, U, Sn, Ta, W, Mn, H	
	Adelpholite	Fe, Mn, Cb, H	2
	Wolframite*	(Fe Mn) W	3
	Ferberite	(Fe Mn) ⁴ W ³	
	Humboldtine	2 Fe U+3 H	
		MANGANESE.	
	Hausmannite*	Mn ³ Mn	2
	Braunite*	2 Mn ³ Mn+Mn Si	2
	Pyrolusite*	Mn	3
	Manganite	Mn H	3
	Pyrochroite	(Mn, Mg) H	
	Psilomelane*	(Ba Mn) Mn ² +H	
	Wad*	(Fe Ba Co Cu) Mn+H	
	Crednerite	Cu ³ Mn ²	4
	Alabandite	Mn S	1
	Hauerite	Mn S ²	1
	Fauserite	Mg S+2 Mn S+15 H	3
	Hureaulite	(Fe Mn) ⁵ P ³ +5 H	4
	Triplite	(Fe Mn) ³ P+(Ca Mg Fe) F	3
	Kancite	Mn As	

No	Name.	Formula.	System of crystallization.
	Chondrarsenite	$\text{Mn}^5 \ddot{\text{As}} + 2\frac{1}{2} \text{H}$	
	Rhodochrosite	$\text{Mn } \ddot{\text{O}}$	6
	Manganocalcite	$(\ddot{\text{Oa}} \text{ Mg}) \ddot{\text{O}} + 2 \text{Mn } \ddot{\text{O}}$	3 ?
	Sussexite†	$(\text{Mg Mn})^2 \ddot{\text{B}} + \ddot{\text{H}}$	
	Huebnerite†	$\text{Mn } \ddot{\text{W}}$	3
	Megabasite	$(\text{Mn Fe } \ddot{\text{Oa}})^4 \ddot{\text{W}}^3$	3
	COBALT.		
	Sycpoorite	Co S	
	Linnæite*	$2 \text{Co S} + \text{Co S}^2$	1
	Carrollite	$\text{Co}^2 \text{S}^2 + \text{Cu S}$	1
	Bieberite	$\ddot{\text{Co}} \ddot{\text{S}} + 7 \text{H}$	4
	Skutterudite	Co As^3	1
	Smaltite*	$(\text{Co Fe Ni}) \text{As}^2$	1
	Cobaltite	$\text{Co S}^2 + \text{Co As}^2$	1
	Glaucodot	$(\text{Co Fe}) \text{S}^2 + (\text{Co Fe}) \text{As}^2$	3
	Erythrite*	$\ddot{\text{Co}}^3 \ddot{\text{As}} + 8 \text{H}$	4
	Remingtonite†	$\ddot{\text{Co}}, \ddot{\text{C}}, \text{H}$	
	NICKEL.		
	Bunsenite	Ni	1
	Millerite*	Ni S	6
	Grucnauite	$\text{S, Ni, Bi, Fe, Co, Cu, Pb}$	1
	Morenosite*	$\text{Ni } \ddot{\text{S}} + 7 \text{H}$	
	Niecolite*	Ni As	6
	Rammelsbergite	Ni As^2	3
	Gersdorffite*	$\text{Ni S}^2 + \text{Ni As}^2$	1
	Ullmannite	$\text{Ni S}^2 + \text{Ni (Sb As)}^2$	1

No.	Name.	Formula.	System of crystallization.
	Corynite	$\text{Ni S}^2 + \text{Ni (Sb, As) S}^2$	1
	Annabergite*	$\text{Ni}^3 \ddot{\text{As}} + 8 \text{ H}$	4
	Cabrerite	$(\text{Mg Ni Co})^3 \ddot{\text{As}} + 8 \text{ H}$	4
	Breithauptite*	Ni Sb	6
	Zaratite	$\text{Ni } \ddot{\text{O}} + 2 \text{ Ni H} + 4 \text{ H}$	
ZINC.			
	Zinc	Zn	6
	Zincite*	$\ddot{\text{Zn}}$	6
	Sphalerite*	Zn S	1
	Wurtzite	Zn S	6
	Voltzite	$4 \text{ Zn S} + \ddot{\text{Zn}}$	
	Zinkosite?	$\ddot{\text{Zn}} \ddot{\text{S}}?$	
	Goslarite	$\text{Zn } \ddot{\text{S}} + 7 \text{ H}$	3
	Hopeite	$\text{Zn, } \ddot{\text{O}}, \text{P, H}$	3
	Koettigite	$(\text{Zn Co Ni})^3 \ddot{\text{As}} + 8 \text{ H}$	4
	Adamite	$\text{Zn}^3 \ddot{\text{As}} + \text{Zn H}$	3
	Smithsonite*	$\text{Zn } \ddot{\text{O}}$	6
	Hydrozincite*	$\text{Zn } \ddot{\text{O}} + 2 \text{ Zn H}$	
	Aurichalcite*	$3 \text{ Zn H} + 2 \text{ Cu } \ddot{\text{O}}$	
CADMIUM.			
	Greenockite*	Cd S	6
TIN.			
	Tin	Sn	2
	Cassiterite*	$\ddot{\text{Sn}}$	2
	Stannite	$2(\text{Cu Fe Zn}) \text{ S} + \text{Sn S}^2$	2?

No.	Name.	Formula.	System of crystallization.
TITANIUM.			
	Rutile*	Ti	2
	Octahedrite*	Ti	2
	Brookite*	Ti	3
LEAD.			
	Lead*	Pb	1
	Massicot*	Pb	3
	Minium*	$\text{Pb}+2 \text{ Pb}$	
	Plattnerite ?	Pb	6 ?
	Galenite*	Pb S	1
	Sartorite	$\text{Pb S}+\text{As}^2 \text{ S}^3$	3
	Geocronite*	$5 \text{ Pb S}+(\text{Sb As})^2 \text{ S}^3$	3
	Dufrenoyite	$2 \text{ Pb S}+\text{As}^2 \text{ S}^3$	3
	Zinkenite	$\text{Pb S}+\text{Sb}^2 \text{ S}^3$	3
	Boulangerite	$3 \text{ Pb S}+\text{Sb}^2 \text{ S}^3$	
	Plagionite	$\text{Pb S}+\text{Sb}^2 \text{ S}^3+\frac{1}{2} \text{ Pb S}$	4
	Jamesonite	$2 (\text{Fe Pb}) \text{ S}+\text{Sb}^2 \text{ S}^3$	3
	Bournonite	$3(\text{Pb Cu}) \text{ S}+\text{Sb}^2 \text{ S}^3$	3
	Kobellite	$3 \text{ Pb S}+(\text{Bi Sb})^2 \text{ S}^3$	
	Meneghinite	$4 \text{ Pb S}+\text{Sb}^2 \text{ S}^3$	4
	Clayite ?	Cu, Pb, S, As, Sb	1
	Anglesite*	Pb S	3
	Leadhillite*	$\text{Pb S}+3 \text{ Pb O}$	3
	Lanarkite	$\text{Pb S}+\text{Pb O}$	4
	Susannite	$\text{Pb S}+3 \text{ Pb O}$	6
	Caledonite*	$3 \text{ Pb S}+2 \text{ Pb O}+\text{Cu O}$	3

No.	Name.	Formula.	System of crystallization.
	Linarite	$\text{Pb } \bar{\text{S}} + \bar{\text{Cu}} \bar{\text{H}}$	4
	Lamprophanite	$\bar{\text{Na}}, \bar{\text{K}}, \bar{\text{Ca}}, \bar{\text{Mg}}, \bar{\text{Mn}}, \bar{\text{Pb}}, \bar{\text{S}}, \bar{\text{H}}$	
	Clausthalite	Pb Se	1
	Zorgite	$\text{Pb Se} + \text{Cu Se}$	
	Lehrbachite	Pb, Hg, Se	
	Altaite	Pb Te	1
	Nagyagite	$2 (\text{Pb Au}) + 3 (\text{Te Sb S})$	2
	Cotunnite	Pb Cl	3
	Matlockite	$\text{Pb Cl} + \bar{\text{Pb}}$	2
	Mendipite	$\text{Pb Cl} + 2 \bar{\text{Pb}}$	3
	Schwartzembergite	$\text{Pb I} + 2 \bar{\text{Pb}}$	6
	Percylite	$(\text{Pb Cl} + \bar{\text{Pb}}) + (\text{Cu Cl} + \bar{\text{Cu}}) + \bar{\text{H}}$	1
	Pyromorphite*	$3 \bar{\text{Pb}}^3 \bar{\text{P}} + \text{Pb Cl}$	6
	Plumbogummite	$\bar{\text{Pb}}^3 \bar{\text{P}} + 6 \bar{\text{Al}} \bar{\text{H}}^3$	
	Mimetite*	$3 \bar{\text{Pb}}^3 \bar{\text{As}} + \text{Pb Cl}$	6
	Monimolite	$(\bar{\text{Oa}} \bar{\text{Mg}} \bar{\text{Fe}} \bar{\text{Mn}} \bar{\text{Pb}})^4 \bar{\text{Sb}}$	2
	Bindheimite	$\bar{\text{Pb}}^3 \bar{\text{Sb}} + 4 \bar{\text{H}}$	
	Cerussite*	$\bar{\text{Pb}} \bar{\text{C}}$	3
	Phosgenite	$\bar{\text{Pb}} \bar{\text{C}} + \text{Pb Cl}$	2
	Crocoite	$\bar{\text{Pb}} \bar{\text{Cr}}$	4
	Phœnicochroite	$\bar{\text{Pb}}^3 \bar{\text{Cr}}^2$	3?
	Vauquelinite	$\bar{\text{Cu}}^3 \bar{\text{Cr}}^2 + 2 \bar{\text{Pb}}^3 \bar{\text{Cr}}^2$	4
	Stolzite*	$\bar{\text{Pb}} \bar{\text{W}}$	2
	Wulfenite*	$\bar{\text{Pb}} \bar{\text{Mo}}$	2
	Dechenite	$\bar{\text{Pb}} \bar{\text{V}}$	
	Descloizite*	$\bar{\text{Pb}}^2 \bar{\text{V}}$	3

No.	Name.	Formula.	System of crystalliza- tion.
	Vanadinite	$\text{Pb}^3 \text{V} + \frac{1}{8} \text{Pb Cl}$	6
	BISMUTH.		
	Bismuth*	Bi	6
	Bismite	$\bar{\text{Bi}}$.
	Karelinite	$\bar{\text{Bi}}$ with Bi S	
	Bismuthinite*	$\text{Bi}^2 \text{S}^3$	3
	Emplectite	$\text{Cu S} + \text{Bi}^2 \text{S}^3$	3
	Chiviatite	$(\text{Cu Pb}) \text{S} + \frac{3}{2} \text{Bi}^2 \text{S}^3$	
	Wittichenite	$3 \text{Cu S} + \text{Bi}^2 \text{S}^3$	3
	Aikinite*	$(3 \text{Cu S} + \text{Bi}^2 \text{S}^3) + 2 (3 \text{Pb S} + \text{Bi}^2 \text{S}^3)$	3
	Tetradymite*	$\text{Bi}^2 (\text{Te S})^3$	6
	Joseite	$\text{Bi}^3 (\frac{1}{2} \text{Te} + \frac{1}{2} (\text{S Se}))^4$	6
	Wehrlite	$\text{Bi} (\text{Te S})$	6
	Montanite*	$\bar{\text{Bi}} \text{Te} + 2 \text{H}$	
	Alloclasite	$2 \text{Co S}^2 + \text{Co As}^2 + 4 \text{Bi As}$	3
	Bismutite*	$3 (\bar{\text{Bi}} \bar{\text{O}} + \text{H}) + \bar{\text{Bi}} \text{H}$	
	ARSENIC.		
	Arsenic*	As	6
	Arsenolite*	$\bar{\text{As}}$	1
	Claudetite	$\bar{\text{As}}$	3
	Realgar	As S	4
	Orpiment*	$\text{As}^2 \text{S}^3$	3
	Dimorphite	$\text{As}^4 \text{S}^3$	3
	ANTIMONY.		
	Antimony*	Sb	6
	Senarmontite	$\bar{\text{Sb}}$	1
	Valentinite	$\bar{\text{Sb}}$	3

No.	Name.	Formula.	System of crystallization.
	Cervantite*	$\text{Sb} + \text{Sb}$	3
	Stibiconite*	$\text{Sb} + \text{H}$	
	Volgerite	$\text{Sb} + 5 \text{ H}$	
	Stibnite*	$\text{Sb}^2 \text{ S}^2$	3
	Kermesite	$\text{Sb} + 2 \text{ SbS}^2$	4
	Berthierite*	$\text{Fe S} + \text{Sb}^2 \text{ S}^2$	
	Allemontite	Sb As^2	6
URANIUM.			
	Uraninite	U U	1
	Eliasite	$(\text{Fe U}) \text{ H}^2$	
	Gummite	$(\text{Fe U}) \text{ H}^2$	
	Johannite*	$[\frac{2}{3} (\text{U}^3 \text{ U}) + \frac{1}{3} \text{Cu}^2] \text{ S} + 1\frac{1}{3} \text{ H}$	4
	Uranochalcite	$[\frac{2}{3} (\text{U}^3 \text{ U}) + \frac{1}{3} \text{Ca}^2] \text{ S} + \frac{1}{3} \text{Cu S} + 9 \text{ H}$	
	Medjidite	$(\frac{1}{2} \text{ U} + \frac{1}{2} \text{Ca}^2) \text{ S} + 7\frac{1}{2} \text{ H}$	
	Zippeite	$(\text{U Cu}^2)^2 \text{ S}^2 + 8 \text{ H}$	
	Voglianite	$4 (\text{U}^3 \text{ U})^2 \text{ S} + (\text{Ca Cu}) \text{ S} + 10 \text{ H}$	
	Uraconite	$\text{U}^3 \text{ S} + 14 \text{ H}$	
	Torbernite	$\text{U}^2 \text{ P} + \text{Cu H} + 7 \text{ H}$	2
	Autunite*	$\text{U}^2 \text{ P} + \text{Ca H} + 7 \text{ H}$	3
	Liebigite	$\text{U C} + \text{Ca C} + 20 \text{ H}$	
	Voglite	$2 \text{ U C} + 2 \text{Ca C} + \text{Cu}^2 \text{ C}^2 + 14 \text{ H}$	
	Polycrase	$\text{Y, U, Ti, Zr, Fe, Ce, Pb}$	3
	Samarskite	$((\text{Fe Y Ce})^2 \text{ U} (\text{Zr Th} \frac{3}{2}))^2 \text{ Pb}_2$	3
TUNGSTEN.			
	Tungstite*	W	

No.	Name.	Formula.	System of crystallization.
MOLYBDENUM.			
	Molybdite*	Mo	3
	Molybdenite*	Mo S^2	6 ?
VANADIUM.			
	Vanadic Ochre†?	V	
COPPER.			
	Copper*	Cu	1
	Cuprite*	Cu	1
	Melaconite*	Cu	1
	Chalcocite*	Cu S	3
	Cubanite.	$\text{Cu S} + \text{Fe S} + 3\text{Fe S}^2$	1
	Chalcopyrite*	$\text{Cu S} + \text{Fe S} + \text{Fe S}^2$	2
	Barnhardtite*	$2 \text{Cu S} + \text{Fe S} + \text{Fe S}^2$	
	Covellite	Cu S^2	6
	Chalcostibite	$\text{Cu S} + \text{Sb}^2 \text{S}^2$	3
	Binnite	$\frac{3}{2} \text{Cu S} + \text{As}^2 \text{S}^2$	1
	Stylopyrite	$3 (\text{Fe Cu Ag}) \text{S} + \text{Sb}^2 \text{S}^2$	3
	Tetrahedrite†	$4 \text{Cu S} + \text{Sb}^2 \text{S}^2$	1
	Tennantite	$4 (\text{Fe Cu}) \text{S} + \text{As}^2 \text{S}^2$	1
	Enargite*	$3 \text{Cu S} + \text{As}^2 \text{S}^2$	3
	Bornite*	$(\text{Fe Cu}) \text{S}$	1
	Castillite	$(\text{Cu Ag})^2 \text{S} + 2 (\text{Fe Zn Pb Cu}) \text{S}$	
	Chalcanthite	$\text{Cu S} + 5 \text{H}$	5
	Brochantite	$\text{Cu S} + 2\frac{1}{2} \text{Cu H}$	3
	Langite	$\text{Cu S} + 3 \text{Cu H} + \text{H}$	3
	Cyanotrichite	$3 \text{Cu}^2 \text{S} + 2 \text{Al H}^2 + 15 \text{H} ?$	

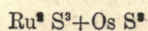
No.	Name.	Formula.	System of crystallization.
	Connellite	Cu, S, Cl	6
	Berzelianite	Cu Se	
	Eucairite	$(\text{Cu Ag}) \text{Se}$	
	Crookesite	$(\text{Cu Tl Ag}) \text{Se}$	
	Atacamite	$3 \text{ Cu H} + \text{Cu Cl H}$	3
	Tallingite	$4 \text{ Cu H} + \text{Cu Cl H} + 3 \text{ aq}$	
	Thrombolite	$\text{Cu}^3 \text{ P}^2 + 6 \text{ H} ?$	
	Libethenite	$\text{Cu}^4 \text{ P} + \text{H}$	3
	Olivenite	$\text{Cu}^4 (\text{As P}) + \text{H}$	3
	Conichalcite	$(\text{Cu Cu})^3 (\text{As P}) + \text{Cu H} + \frac{1}{2} \text{ H}$	
	Tagillite	$\text{Cu}^4 \text{ P} + 3 \text{ H}$	4
	Liroconite	$\text{Cu}^2 (\text{As, P}) + (\frac{2}{3} \text{ Al} + \frac{1}{3} \text{ Cu}^2) \text{ H}^2 + 9 \text{ H}$	4
	Pseudomalachite*	$\text{Cu}^2 \text{ P} + 3 \text{ H}$	3
	Domeykite*	$\text{Cu}^3 \text{ As}^2$	
	Algodonite*	$\text{Cu}^6 \text{ As}^2$	
	Whitneyite*	$\text{Cu}^9 \text{ As}^2$	
	Trichalcite	$\text{Cu}^3 \text{ As}^3 + 5 \text{ H}$	
	Bayldonite	$(\text{Pb Cu})^4 \text{ As} + 2 \text{ H}$	
	Euchroite	$\text{Cu}^4 \text{ As} + 7 \text{ H}$	3
	Erinite	$\text{Cu}^5 \text{ As} + 2 \text{ H}$	
	Cornwallite	$\text{Cu}^5 \text{ As} + 5 \text{ H}$	
	Tyrolite	$\text{Cu}^5 \text{ As} + 9 \text{ H}$	3
	Clinoclasite	$\text{Cu}^6 \text{ As} + 3 \text{ H}$	4
	Chalcophyllite	$\text{Cu}^6 \text{ As} + 12 \text{ H}$	6
	Chénevixite	$(\text{Fe Cu})^2 \text{ As} + 3 \text{ H}$	
	Lindackerite	$2 \text{ Cu}^3 \text{ As} + \text{Ni}^3 \text{ S} + 7 \text{ H}$	3

No.	Name.	Formula.	System of crystallization.
	Malachite*	$\text{Cu}^2 \text{O} + \text{H}$	4
	Azurite*	$2 \text{Cu} \text{O} + \text{Cu} \text{H}$	4
	Volborthite*	$\text{Cu}, \text{V}, \text{H}$	6
	MERCURY.		
	Mercury*	Hg	1
	Amalgam	Ag Hg ² and Ag Hg ³	1
	Cinnabar*	Hg S	6
	Tiemannite	Hg Se	
	Ammiolite	Fe, Sb, Cu, Hg, S	
	Calomel	Hg ² Cl	2
	Coccinite	Hg I	
	SILVER.		
	Silver*	Ag	1
	Chilenite	Bi Ag ⁶	
	Arquerite	Ag ⁶ Hg	1
	Argentite*	Ag S	1
	Daleminzite	Ag S	3
	Acanthite	Ag S	3
	Stromeyerite*	(Cu Ag) S	3
	Sternbergite	$4 (\frac{3}{4} \text{Fe} + \frac{1}{4} \text{Ag}) \text{S} + \text{Fe} \text{S}^2$	3
	Miargyrite	Ag S + Sb ² S ³	4
	Brongniardite	Pb S + Ag S + Sb ² S ³	1
	Freieslebenite	$5 (\text{Pb Ag}) \text{S} + 2 \text{Sb}^2 \text{S}^3$	4
	Pyrostilpnite	Ag, S, Sb	4
	Rittingerite	Ag, S, Sb	4
	Pyrargyrite*	$3 \text{Ag S} + \text{Sb}^2 \text{S}^3$	6
	Proustite*	$3 \text{Ag S} + \text{As}^2 \text{S}^3$	6

No.	Name.	Formula.	System of crystalliza- tion.
	Stephanite*	$5 \text{ Ag S} + \text{Sb}^2 \text{ S}^3$	3
	Polybasite*	$9 (\text{Cu Ag}) \text{ S} + (\text{Sb As})^2 \text{ S}^3$	3
	Xanthoconite	$(3 \text{ Ag S} + \text{As}^2 \text{ S}^3) + 2 (3 \text{ Ag S} + \text{As}^2 \text{ S}^3)$	6
	Bolivianite ?	Ag, S, Sb,	3
	Naumannite	$(\text{Ag Pb}) \text{ Se}$	1
	Hessite*	Ag Te	3
	Cerargyrite*	Ag Cl	1
	Embolite	Ag (Cl Br)	1
	Bromyrite	Ag Br	1
	Iodyrite*	Ag I	6
	Dyserasite	$\text{Ag}^2 \text{ Sb}$	3
	GOLD.		
	Gold*	Au	1
	Gold Amalgam*	$(\text{Ag Au})^3 \text{ Hg}^5$	
	Sylvanite	$(\text{Au Ag}) \text{ Te}^3$	4
	Calaverite*	Au Te^4	
	PLATINUM.		
	Platinum*	Pt	1
	IRIDIUM.		
	Platiniridium*	Ir, Pt, Rd	1
	Iridosmine*	Ir Os	6
	PALLADIUM.		
	Palladium	Pd	1
	Allopalladium	Pd	6

No.	Name.	Formula.	System of crystallization.
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RUTHENIUM.

Laurite

1

RESINS AND ORGANIC COMPOUNDS.

I. SIMPLE HYDROCARBONS.

Naphtha***Scheererite**

4

Chrismatite**Pittolium*****Urpethite****Hatchettite****Ozocerite*****Zietrisikite****Elaterite*****Fichtelite**

4

Hartite

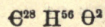
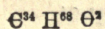
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Koenlite**Naphthalin**

3

Idrialite

II. OXYGENATED HYDROCARBONS.

Geocerite**Geomyricite****Copalite****Succinite****Walchowite**

3

No.	Name.	Formula.	System of crystallization.
	Ambrite		
	Bathvillite		
	Xyloretinite		
	Leucopetrite	$\text{Ca}^{50} \text{H}^{84} \text{O}^3$	
	Euosmite		
	Scleretinite		
	Pyroretinite		
	Rochlederite		
	Schlanite		
	Guyaquillite		
	Middletonite		
	Stanekite		
	Anthracoxenite		
	Tasmanite		
	Dysodile		
	Hircite		

III ACID OXYGENATED HYDROCARBONS.

Butyrellite	$\text{C}^{32} \text{H}^{64} \text{O}^4$
Geocerellite	$\text{C}^{23} \text{H}^{56} \text{O}^4$
Bruecknerellite	$\text{C}^{24} \text{H}^{44} \text{O}^8$
Succinellite	$\text{C}^4 \text{H}^8 \text{O}^4$
Retinellite	
Dopplerite	
Melanellite	

No.	Name.	Formula.	System of crystallization.
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*IV. NITROGENOUS HYDROCARBONS.***Asphaltum****Mineral Coal**

Anthracite*

Native Coke*

Bituminous Coal*

Jet

Lignite*

APPENDIX.

Brewsterlinite**Cryptolinite**

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